



Structures of conductors

According DIN VDE 0295 class 1

Single wire conductors for single- and multi-core cables and wires

Nominal cross-section [mm ²]	Conductor resistance at 20 °C maximum value	
	Copper round conductor	
	blanc [Ohm/km]	Metal-Coated [Ohm/km]
0,5	36,0	36,7
0,75	24,5	24,8
1	18,1	18,2
1,5	12,1	12,2
2,5	7,41	7,56
4	4,61	4,70
6	3,08	3,11
10	1,83	1,84
16	1,15	1,16
25	0,727 1)	
35	0,524 1)	
50	0,387 1)	
70	0,268 1)	
95	0,193 1)	

Nominal cross-section [mm ²]	Conductor resistance at 20 °C maximum value	
	Copper round conductor	
	blanc [Ohm/km]	Metal-Coated [Ohm/km]
120	153 1)	
150	124 1)	
185		
240		
300		
0,5	36,0	36,7
0,75	24,5	24,8

According to DIN VDE 0295 class 2

Stranded conductors for single and multi - core cables and wires

Nominal cross-section [mm ²]	Minimum number of individual wires in the conductor		Conductor resistance at 20 °C maximum value	
	Round copper conductor	Compacted round copper conductor	Copper Conductor	
			bare [Ohm/km]	Metal-coated [Ohm/km]
0,5	7	-----	36,0	36,7
0,75	7	-----	24,5	24,8
1	7	-----	18,1	18,2
1,5	7	6	12,1	12,2
2,5	7	6	7,41	7,56
4	7	6	4,61	4,70
6	7	6	3,08	3,11
10	7	6	1,83	1,84
16	7	6	1,15	1,16

Nominal cross-section [mm²]	Minimum number of individual wires in the conductor		Conductor resistance at 20 °C maximum value	
	Round copper conductor	Compacted round copper conductor	Copper Conductor	
			bare [Ohm/km]	Metal-coated [Ohm/km]
25	7	6	0,727	0,734
35	7	6	0,524	0,529
50	19	6	0,387	0,391
70	19	12	0,268	0,270
95	19	15	0,193	0,195
120	37	18	0,153	0,154
150	37	18	0,124	0,126
185	37	30	0,0991	0,100
240	61	34	0,0754	0,0762
300	61	34	0,0601	0,0607
400	61	53	0,0470	0,0475

According to DIN VDE 0295 class 5 und 6

Fine-stranded copper conductors for single and multi-core cables

Nominal cross-section [mm²]	Largest diameter of the individual wires [mm] (Klasse 5)	Largest diameter of the individual wires [mm] (Klasse 6)	Conductor resistance at 20 °C maximum value	
			Bare single wires [Ohm/km]	Metal-coated single wires [Ohm/km]
0,5	0,21	0,16	39,0	40,1
0,75	0,21	0,16	26,0	26,7
1	0,21	0,16	19,5	20,0
1,5	0,26	0,16	13,3	13,7
2,5	0,26	0,16	7,98	8,21
4	0,31	0,16	4,95	5,09

Nominal cross - section [mm²]	Largest diameter of the individual wires [mm] (Klasse 5)	Largest diameter of the individual wires [mm] (Klasse 6)	Conductor resistance at 20 °C maximum value	
			Bare single wires [Ohm/km]	Metal-coated single wires [Ohm/km]
6	0,31	0,21	3,30	3,39
10	0,41	0,21	1,91	1,95
16	0,41	0,21	1,21	1,24
25	0,41	0,21	0,780	0,795
35	0,41	0,21	0,554	0,565
50	0,41	0,31	0,386	0,393
70	0,51	0,31	0,272	0,277
95	0,51	0,31	0,206	0,210
120	0,51	0,31	0,161	0,164
150	0,51	0,31	0,129	0,132
185	0,51	0,41	0,106	0,108
240	0,51	0,41	0,0801	0,0817
300	0,51	0,41	0,0641	0,0654

according to US standards

AWG	Cross section	Conductor structure	Conductor resistance at 20 °C max. [Ohm/km]		
			tin-plated	silver-plated	nickel-plated
32	0,034	7 x 0,079	620	567	607
30	0,057	7 x 0,102	374	330	363
28	0,089	7 x 0,127	225	209	223
26	0,141	7 x 0,160	142	133	141
26	0,155	19 x 0,102	135	126	138
24	0,227	7 x 0,203	88,6	82,7	86,9
24	0,241	19 x 0,127	85,9	79,7	84,9
22	0,355	7 x 0,254	56,1	52,1	54,4
22	0,382	19 x 0,160	53,1	49,5	52,5
20	0,563	7 x 0,320	35,1	32,8	34,1

AWG	Cross section	Conductor structure	Conductor resistance at 20 °C max. [Ohm/km]		
			tin-plated	silver-plated	nickel-plated
20	0,616	19 x 0,203	32,4	30,1	32,0
18	0,897	7 x 0,404	21,9	20,6	21,3
18	0,963	19 x 0,254	20,4	19,0	20,0
16	1,229	19 x 0,287	15,7	14,8	15,6
14	1,941	19 x 0,361	10,03	9,44	9,84
12	3,085	19 x 0,455	6,29	5,94	6,17
10	4,743	37 x 0,404	4,13	3,90	4,07
8	8,604	133 x 0,287	2,30	2,16	2,28
6	13,613	133 x 0,361	1,45	1,37	1,43
4	21,153	133 x 0,450	0,918	0,865	0,902
2	33,696	665 x 0,254	0,600	0,557	0,580
1	41,398	817 x 0,254	0,488	0,455	0,472
0	52,951	1045 x 0,254	0,380	0,354	0,370
00	67,392	1330 x 0,254	0,298	0,278	0,291
0000	106,865	2109 x 0,254	0,183	0,177	0,183